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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | |
| 09/386,646 | 08/31/99 | FAZAN | P | 660073.488D1 |
| MM12/1209 | | | EXAMINER | |
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| ART UNIT | | PAPER NUMBER | | |
| | | 2811 | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

| | |
|-------------------------------|------------------------------|
| Application No. 09/386,646 | Applicant(s) GAZAN ET AL. |
| Examiner HUNG K. VU | Group Art Unit 2811 |



Responsive to communication(s) filed on Aug 31, 1999

This action is FINAL.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

Claim(s) 22-34 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

Claim(s) _____ is/are allowed.

Claim(s) 22-34 is/are rejected.

Claim(s) _____ is/are objected to.

Claims _____ are subject to restriction or election requirement.

Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on _____ is/are objected to by the Examiner.

The proposed drawing correction, filed on _____ is approved disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All Some* None of the CERTIFIED copies of the priority documents have been received.

received in Application No. (Series Code/Serial Number) _____.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). 2

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
2. The disclosure is objected to because of the following informalities: On page 7, line 14, "92" should be changed to "93" for clarity.

Appropriate correction is required.

Claim Objections

3. Claim 23 is objected to because of the following informalities: In claim 23, line 10, "ploysilicon" should be changed to "polysilicon" for clarity. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 26-31 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one

skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not disclose the component extends from the field oxide or the gate structure extending from the field oxide by a height at least equal to approximately two time a height that the field oxide extends from the trench beyond the surface of the substrate, as described in claims 26, 28, and 30.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 22, 32, and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Manning (PN 5,177,028).

Manning discloses a microelectronic device comprising,

a microelectronic substrate (12);

a gate oxide layer (26) formed on the substrate;

a polysilicon gate layer (28) formed on the gate oxide layer,

a trench (18) extending into the substrate;

a field oxide (22) in the trench, the field oxide having a field oxide level between the level of an upper surface of the substrate and the level of an upper surface of the polysilicon gate layer;

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the field oxide extending from the trench beyond the surface of the substrate, by a height which is less than approximately one half of a height of the gate structure formed on the substrate. Note Figures 7 and 13 of Mañning.

It is noted that in the claim 22, the term "a trench defined through the polysilicon gate layer, the gate oxide layer and extending into the substrate" is method recitation in a device claimed, and it is non-limiting, because only the final product is relevant, not the method of making. A product by process claim is directed to the product per se, no matter how actually made. See In re Fessman, 180 USPQ 324, 326 (CCPA 1974); In re Marosi et al, 218 USPQ 289, 292 (Fed. Cir. 1983); and particularly In re Thorpe, 227 USPQ 964, 966 (Fed. Cir. 1985), all of which make it clear that it is the patentability of the final structure of the product "gleaned" from the process steps, which must be determined in a "process by product" claim, and not the patentability of the process. See also MPEP 2113. Moreover, an old or obvious product produced by a new method is not a patentable product, whether claimed in "product by process" claims or not.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 23-25 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' Admitted Prior Art Figure 1 in view of Manning (PN 5,177,028).

Applicants' Admitted Prior Art Figure 1 discloses all the claim limitation except the field oxide having a field oxide level between the level of an upper surface of the gate oxide and the level of an upper surface of the polysilicon gate layer. However, Manning discloses the field oxide having a field oxide level between the level of an upper surface of the gate oxide and the level of an upper surface of the polysilicon gate layer. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the field oxide of Applicants' Admitted Prior Art Figure 1 having a field oxide level between the level of an upper surface of the gate oxide and the level of an upper surface of the polysilicon gate layer, such as taught by Manning in order to reduce the possibility of parasitic transistors being formed on trench sidewalls.

It is noted that in the claim 23, the term "a trench defined through the polysilicon gate layer, the gate oxide layer and extending into the substrate" is method recitation in a device claimed, and it is non-limiting, because only the final product is relevant, not the method of making. A product by process claim is directed to the product per se, no matter how actually made. See In re Fessman, 180 USPQ 324, 326 (CCPA 1974); In re Marosi et al, 218 USPQ 289, 292 (Fed. Cir. 1983); and particularly In re Thorpe, 227 USPQ 964, 966 (Fed. Cir. 1985), all of which make it clear that it is the patentability of the final structure of the product "gleaned" from the process steps, which must be determined in a "process by product" claim, and not the

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patentability of the process. See also MPEP 2113. Moreover, an old or obvious product produced by a new method

Although Applicants' Admitted Prior Art Figure 1 and Manning do not teach the exact the material of silicide layer as that claimed by Applicant, the material differences are considered obvious design choices and are not patentable unless unobvious or unexpected results are obtained from these changes. It appears that these changes produce no functional differences and therefore would have been obvious. Note *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Circ. 1990).

Conclusion

7. Papers related to this application may be submitted to Technology Center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722 and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.

Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to **Hung K. Vu** whose telephone number is **(703) 308-4079**. The

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Examiner is in the Office generally between the hours of 7:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology Center Receptionists** whose telephone number is **308-0956**.



Tom Thomas
Supervisory Patent Examiner
Technology Center 2800

Vu

December 3, 1999